

PRELIMINARY REPORT OF THE PHYTOPLANK- TON OF THE GULF OF MAINE

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PRELIMINARY REPORT OF THE PHYTOPLANK-
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Preliminary Report of the Phytoplankton of the Gulf of Maine¹

Lois C. Lillick

A detailed survey of the biology of the offshore waters of the Gulf of Maine was made under the direction of Dr. A. C. Redfield by the Woods Hole Oceanographic Institution in 1933 and 1934, during which time the institution's research ketch "Atlantis" made frequent cruises into the gulf. There was no botanist associated with the laboratory at that time, but phytoplankton collections were made and stored in the hope that some one would be found to carry on this phase of the survey. In the summer of 1936 the writer undertook to work up the material, and the present paper is the resulting account of the phytoplankton.

The investigation was undertaken while the writer was a research fellow at the Woods Hole Oceanographic Institution and a student at the University of Michigan. During the past year an exchange fellowship from the University of Michigan to Radcliffe College has made possible the completion of the work. Much assistance and guidance during the course of the investigation has been received from Professor Wm. Randolph Taylor of the University of Michigan and the Marine Biological Laboratory, Woods Hole, and Professors H. B. Bigelow and A. C. Redfield of Harvard University and the Woods Hole Oceanographic Institution, for all of which the writer is deeply indebted. This paper comprises but a preliminary report. A more detailed account is in the process of preparation.

Collections were begun in September, 1933 and were made nearly every month thereafter until July, 1934. Water bottle samples were taken at 1, 10, 30, 50, and 80 meters depth. In addition net hauls were made in April and May, 1934, and August, 1936. Cruises were spaced farther apart than is desirable, but in spite of this, there is good evidence that none of the major phases of the phytoplankton cycle were missed. Both qualitative and quantitative analyses of the material were made, the results of which are best expressed in tabular form.

In Tables 1 to 3 are given lists of all species found during the survey, together with their seasonal occurrence. A great number of species in widely separated groups were represented in the phytoplankton collections. The importance of the diatoms overshadowed that of all other classes as it normally does in these latitudes. Of this group 25 genera and 69 species and varieties were identified, though the total number now known for the gulf exceeds this considerably. The Dinophyceae, of which 11 genera and 44 species were found, were of secondary importance. As yet the taxonomic work on this group has not been completed, therefore this number will probably be

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increased. Of lesser consequence are the Chrysophyceae, represented by the Silicoflagellata and Coccolithophoridae, the Myxophyceae, and certain unclassified flagellates. In making taxonomic determinations the following authorities were used: Bacillariophyceae, Gran (1908), Hustedt (1930 et seq.); Dinophyceae, Paulsen (1908), Lebour (1925), Schiller (1931); Coccolithophoridae, Schiller (1930); and Silicoflagellata, Gemeinhardt (1930). The terminology used by Fritch (1935) has been followed.

For the quantitative determinations the precipitation method developed by Nielsen and von Brand (1934) was followed. April, May and August results are based upon corrected vertical net tows rather than water bottle samples, in which cases the quantity of plankton is expressed as the number of cells found under one tenth of a square meter of surface, an area selected because it approximates that of the net used. It is not practical to publish here all the tables obtained, therefore those given (Tables 4 to 37) are ones selected from representative parts of the gulf at the different seasons. The approxi-



Fig. 1. Approximate locations of "Atlantis" stations in the Gulf of Maine, 1933-1934.

mate locations of the stations for which tables are given are shown in Fig. 1.

From both the quantitative and qualitative charts it can be seen that the phytoplankton of the Gulf of Maine follows the cycle that is typical of boreal seas. There is an intense flowering of diatoms in the spring, followed by a summer lull. Late in summer a minor diatom flowering arises, quickly succeeded by the scant winter population. All discussion of the significance of these data is being reserved for the more detailed account.

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TABLE I

Bacillariophyceae

No. of Stations at which present

	Sept.	Oct.	Dec.	Jan.	March	April	May	June	August
No. of stations made	11	7	8	10	11	73	48	6	11
<i>Achnanthes taeniata</i> Grun.						17	1		
<i>Actinoptychus undulatus</i> (Bail.) Ralfs	1	1	1	1	1		2	1	1
<i>Biddulphia aurita</i> (Lyngbye) Breb. et Godey						9	3		
<i>Cerataulina Bergoni</i> Per.				1					
<i>Chaetoceros</i> spp.	1	1			1	7			
<i>Ch. affinis</i> Laud.						37	4		3
<i>Ch. atlanticus</i> Cleve						19	6		2
<i>Ch. borealis</i> Bail.					1	1	1		1
<i>Ch. borealis</i> var. <i>concavicornis</i>						5	10		
<i>Ch. compressus</i> Laud.						2	1		1
<i>Ch. constrictus</i> Gran						28	9		
<i>Ch. convolutus</i> Castr.						44	10		
<i>Ch. debilis</i> Cleve					1	29	9		
<i>Ch. decipiens</i> Cleve				1	1	19	15	3	4
<i>Ch. diadema</i> (Ehr.) Gran						33	2		
<i>Ch. didymus</i> Ehr.						19	10		1
<i>Ch. furcellatus</i> Bail.						9	9	1	

TABLE 1 (Continued)

	Sept.	Oct.	Dec.	Jan.	March	April	May	June	August
<i>Ch. lacinosus</i> Schütt	-	-	-	-	-	26	6	-	1
<i>Ch. lorenzianus</i> Grun.	-	-	-	-	-	1	-	-	-
<i>Ch. pseudocrinitus</i> Ostf.	-	-	-	-	-	-	-	-	1
<i>Ch. radians</i> Schütt	-	-	-	-	-	29	-	-	-
<i>Ch. socialis</i> Laud.	-	-	-	-	-	1	-	-	-
<i>Ch. subsecundus</i> (Grun.) Hust.	-	-	-	-	-	1	-	-	-
<i>Ch. teres</i> Cleve	-	-	-	-	-	6	-	-	1
<i>Cocconeis Scutellum</i> Ehr.	-	-	-	-	1	-	-	-	-
<i>Corethron hystrix</i> Hensen	-	-	1	1	-	3	-	-	1
<i>Coscinodiscus</i> spp.	2	-	1	-	-	-	1	-	1
<i>C. centralis</i> Ehr.	2	3	5	9	3	12	24	-	4
<i>C. excentricus</i> Ehr.	3	4	7	8	1	5	1	1	3
<i>C. radiatus</i> Ehr.	-	-	-	-	-	-	4	-	-
<i>Cyclotella</i> sp.	-	-	-	1	-	-	-	-	-
<i>Detonula confervacea</i> (Cleve) Gran	-	-	-	1	1	11	2	-	-
<i>Eucampia zoodiacus</i> Ehr.	-	-	-	-	-	6	-	-	-
<i>Fragillaria</i> sp.	-	-	-	-	-	1	-	-	-
<i>Grammatophora marina</i> (Lyngb.) Kütz.	1	-	1	-	-	-	-	-	-
<i>Guinardia flaccida</i> Prerag.	7	-	-	1	-	-	-	1	9
<i>Leptocylindrus danicus</i> Cleve	-	-	-	2	-	3	3	-	3
<i>Lichmophora abbreviata</i> Ag.	-	-	-	-	-	-	-	-	1
<i>Melosira</i> sp.	-	-	-	1	-	3	-	-	-
<i>M. sulcata</i> (Ehr.) Kütz.	3	3	3	3	4	1	7	2	1
<i>Navicula</i> sp.	2	2	1	-	-	-	-	-	-
<i>N. distans</i> W. Smith	-	1	-	2	1	3	7	1	4
<i>N. Vanhoeffenii</i> Cleve	-	-	-	-	2	-	-	-	-
<i>Nitzschia Closterium</i> W. Smith	-	-	-	2	1	11	2	-	6
<i>N. delicatissima</i> Cleve	-	-	-	-	-	-	-	1	-
<i>N. longissima</i> Cleve	-	-	-	6	-	-	-	2	-
<i>N. seriata</i> Cleve	-	-	-	1	2	-	-	-	-
<i>Pinnularia</i> sp.	1	-	-	-	-	-	-	1	-
<i>Pleurosigma Normani</i> Ralfs	1	-	1	4	4	4	4	1	4
<i>Porosira glacialis</i> (Grun.) Jörg.	-	-	-	-	4	46	12	-	-
<i>Rhizosolenia</i> spp.	-	1	-	-	2	-	-	3	-
<i>Rh. alata</i> Brightw.	1	-	-	-	6	5	-	-	7
<i>Rh. Bergoni</i> Perag.	-	-	-	-	-	2	-	-	-
<i>Rh. calcar-avis</i> Cleve	-	-	-	-	-	-	-	-	1
<i>Rh. fragilissima</i> Bergon.	-	-	-	-	-	2	-	-	-
<i>Rh. hebatata</i> var. <i>semispina</i> (Hensen) Gran	1	-	-	-	-	6	4	-	4
<i>Rh. imbricata</i> var. <i>Shrubsolei</i> (Cleve) Schroeder	-	-	-	-	1	38	8	-	3
<i>Rh. setigera</i> Brightw.	1	-	-	-	-	-	-	-	-
<i>Rh. styliformis</i> Brightw.	-	-	-	-	-	-	-	-	5
<i>Sceletonema costatum</i> (Grev.) Cleve	-	-	-	4	1	-	-	1	2
<i>Thalassionema nitzschioides</i> Grun.	7	-	3	8	4	21	3	2	-
<i>Thalassiosira</i> spp.	1	-	2	5	1	-	-	1	-
<i>Th. bioculata</i> (Grun.) Ostf.	1	-	-	-	2	-	-	-	-
<i>Th. decipiens</i> (Grun.) Jörg.	-	1	2	8	4	-	-	3	-
<i>Th. gravida</i> Cleve	-	-	-	-	1	2	-	-	-
<i>Th. hyalina</i> (Grun.) Gran	1	-	-	-	1	26	2	-	-
<i>Th. Nordenskiöldii</i> Cleve	6	2	1	3	9	59	16	4	2
<i>Thalassiothrix longissima</i> Cleve and Grun.	-	-	-	-	-	1	-	-	-
<i>Triceratium alternans</i> Bail.	-	-	-	1	-	-	-	-	-

TABLE 2

Dinophyceae	No. of Stations at which present								
	Sept.	Oct.	Dec.	Jan.	March	April	May	June	August
<i>Amphidinium oceanicum</i> Lohm. -----	1	-	-	-	-	-	-	-	1
<i>Ceratium bucephalum</i> (Cleve) Cleve -----	-	-	-	-	-	-	-	-	-
<i>C. Fusus</i> (Ehr.) Duj. -----	4	2	2	3	1	2	4	1	8
<i>C. lineatum</i> (Ehr.) Gran -----	4	3	2	4	-	-	-	-	2
<i>C. longipes</i> (Bail.) Gran -----	4	1	-	1	1	-	17	1	6
<i>C. macroceros</i> (Ehr.) Cleve -----	-	-	-	-	-	-	-	-	3
<i>C. tripos</i> (O.F.M.) Nitzsch. -----	2	3	2	4	2	3	2	-	8
<i>C. tripos</i> var. <i>atlanticum</i> Ostf. -----	-	-	-	-	-	-	-	-	9
<i>C. tripos</i> f. <i>subsalsum</i> Ostf. -----	-	-	-	-	-	-	-	-	4
<i>Dinophysis</i> spp. -----	-	-	1	-	-	-	-	-	2
<i>D. acuminata</i> Clap & Lach. -----	4	1	-	-	-	3	-	1	2
<i>D. norvegica</i> Clap & Lach. -----	-	-	-	-	-	-	-	-	1
<i>D. Ovum</i> Schütt -----	1	1	1	-	-	1	-	1	2
<i>D. robusta</i> Gran & Bra. -----	1	-	-	-	-	-	-	-	-
<i>D. sphaerica</i> Stein -----	-	1	-	-	-	-	-	-	-
<i>Exuviaella</i> spp. -----	2	6	4	1	-	-	-	-	-
<i>E. baltica</i> Lohm. -----	-	1	-	2	1	-	-	-	-
<i>E. marina</i> Cienkowski -----	5	1	-	6	1	-	-	1	-
<i>Goniaulax</i> spp. -----	-	2	1	-	-	4	1	-	-
<i>G. tamarensis</i> Lebour -----	1	1	1	-	-	-	1	-	2
<i>Mesoporos perforata</i> (Gran) Lillick -----	-	-	5	-	-	-	-	-	-
<i>Noctiluca miliaris</i> Sur. -----	-	-	1	-	-	-	6	-	4
<i>Peridinium</i> spp. -----	8	5	1	4	1	14	40	3	9
<i>P. americanum</i> Gran & Bra. -----	1	2	-	-	-	-	-	-	-
<i>P. breve</i> Paulsen -----	1	4	-	-	1	-	-	-	-
<i>P. conicoides</i> Paulsen -----	-	2	1	-	-	-	-	-	-
<i>P. conicum</i> (Gran) Ostf. & Schmidt -----	-	-	-	-	-	17	-	1	-
<i>P. conicum</i> var. <i>Asamushi</i> -----	1	1	1	-	-	-	-	-	-
<i>P. crassipes</i> Paulsen -----	-	-	-	-	-	-	-	-	4
<i>P. denticulatum</i> Gran & Bra. -----	1	2	-	-	1	-	-	-	-
<i>P. depressum</i> Bail. -----	1	-	1	-	1	9	12	1	3
<i>P. Granii</i> Ostf. -----	-	1	-	1	2	-	-	-	-
<i>P. minusculum</i> Pav. -----	-	1	-	1	-	-	-	-	-
<i>P. novascotiense</i> Gran & Bra. -----	-	1	-	-	-	-	-	1	-
<i>P. simplex</i> Gran & Bra. -----	2	3	-	2	2	-	-	1	-
<i>P. trochoideum</i> Smith -----	5	-	-	-	-	-	1	-	-
<i>Phalocroma</i> sp. -----	-	-	-	1	1	-	-	-	-
<i>P. parvulum</i> (Schütt) Jörg. -----	-	-	-	1	-	-	-	-	-
<i>Prorocentrum micans</i> Ehr. -----	4	3	3	3	-	-	-	-	1
<i>P. minimum</i> Schiller -----	-	-	1	-	-	-	-	-	-
<i>P. Scutellum</i> Schröder -----	-	-	-	-	-	1	1	1	1

TABLE 3

Coccolithophoridaeae, Silicoflagellata, etc. No. of Stations at which present

	Sept.	Oct.	Dec.	Jan.	March	April	May	June	August
<i>Acanthoica acanthifera</i> Lohm. -----	1	-	-	-	-	-	-	1	-
<i>A. acanthos</i> Schiller -----	9	3	4	8	6	-	-	1	-
<i>A. coronata</i> Lohm. -----	-	-	-	-	1	-	-	-	-
<i>A. monospina</i> Schiller -----	1	-	-	-	1	-	-	-	-
<i>Calytrosphaera uvella</i> Schiller -----	-	-	-	-	1	-	-	-	-
<i>Coccolithus pelagicus</i> (Wall.) Schiller -----	-	-	-	1	-	-	-	-	-
<i>Discosphaera tubifer</i> (Murr. & Blackman) Lohm. -----	-	-	-	-	1	-	-	-	-
<i>Lohmanosphaera</i> sp. -----	-	-	-	1	1	-	-	-	-
<i>L. adriatica</i> Schiller -----	-	-	-	-	1	-	-	-	-
<i>Pontosphaera Bigelowi</i> Gran & Bra. -----	1	-	-	-	-	-	-	-	-
<i>P. Huxleyi</i> Lohm. -----	5	2	-	3	1	-	-	1	2
<i>P. ovalis</i> Schiller -----	-	-	-	1	-	-	-	-	-
<i>Rhabdosphaera stylifer</i> Lohm. -----	-	1	-	1	1	-	-	-	-
<i>R. tubulosa</i> Schiller -----	-	-	-	1	-	-	-	-	-
<i>Scyphosphaera Apsteini</i> Lohm. -----	-	-	-	-	1	-	-	-	-
<i>Syracosphaera</i> sp. -----	6	-	-	-	1	-	-	-	-
<i>S. mediterranea</i> Lohm. -----	-	-	-	-	1	-	-	-	-
<i>S. pulchra</i> Lohm. -----	-	1	-	-	-	-	-	-	-
<i>Dictyocha fibula</i> Ehr. -----	1	1	-	1	1	-	-	1	-
<i>D. fibula</i> var. <i>messanensis</i> (Haek.) Lemm. -----	-	-	-	-	-	-	-	2	-
<i>Distephanus speculum</i> (Ehr.) Haek. -----	1	-	-	2	-	3	-	-	2
<i>Ebria antiqua</i> Schulz -----	-	-	1	-	-	-	-	-	-
<i>E. tripartita</i> (Schum.) Lemm. -----	-	-	-	-	-	1	-	-	-
<i>Gloeocapsa</i> sp. -----	1	-	-	1	-	-	-	-	-
<i>Merismopedia</i> sp. -----	-	-	-	1	-	-	-	-	-
Flagellates, Spores, etc. -----	9	6	5	9	4	1	-	5	-

TABLE 4.—September, 1933, Station 1742.

Species	Depth	Cells per Liter				
		1 m.	10 m.	30 m.	50 m.	75 m.
<i>Actinopterychus undulatus</i> -----	---	---	---	55	---	---
<i>Coscinodiscus centralis</i> -----	---	---	---	55	---	---
<i>Guinardia flaccida</i> -----	---	---	---	55	---	---
<i>Navicula distans?</i> -----	---	---	55	---	---	55
<i>Nitzschia Closterium</i> -----	---	---	---	---	55	---
<i>Thalassionema nitzschioides</i> -----	---	---	---	220	55	---
<i>Thalassiosira Nordenskiöldii</i> -----	---	---	220	165	330	---
<i>Ceratium lineatum</i> -----	---	---	---	275	55	---
<i>C. longipes</i> -----	---	---	---	55	---	---
<i>Dinophysis acuminata</i> -----	---	---	---	55	---	---
<i>Peridinium trochoideum</i> -----	---	---	---	275	---	---
<i>P. simplex</i> -----	---	---	---	165	---	---
<i>Prorocentrum micans</i> -----	---	---	---	55	---	---
<i>Acanthoica acanthos</i> -----	---	---	110	---	---	---
<i>Pontosphaera Huxleyi</i> -----	---	---	---	55	---	---
Flagellates -----	220	220	---	440	385	---
Protozoa -----	165	110	---	---	---	110

TABLE 5.—September, 1933. Station 1748.

Species	Depth	Cells per Liter				
		1 m.	10 m.	30 m.	50 m.	80 m.
<i>Thalassiosira</i> sp. -----	110	--	--	--	--	--
<i>Ceratium tripos</i> -----	55	--	--	--	--	--
<i>Peridinium trochoideum</i> -----	500	385	--	110	110	--
<i>Acanthoica acanthos</i> -----	--	55	--	--	--	110
Spores, flagellates -----	1000	100	330	330	110	--
Protozoa -----	--	--	55	--	--	--

TABLE 6.—September, 1933. Station 1761

Species	Depth	Cells per Liter				
		1 m.	10 m.	30 m.	50 m.	80 m.
<i>Navicula</i> sp. -----	--	--	220	--	--	--
<i>Thalassionema nitzschioides</i> -----	--	--	220	--	--	--
<i>Thalassiosira</i> sp. -----	55	--	--	--	--	--
<i>Peridinium</i> sp. -----	--	110	--	--	--	--
<i>P. americanum</i> -----	220	--	--	--	--	--
<i>Syracosphaera</i> -----	165	110	550	--	--	--
<i>Gloeocapsa</i> (Colony) -----	110	--	--	--	--	--
Flagellates -----	165	220	220	--	--	--
Protozoa -----	110	--	--	--	--	--

TABLE 7.—September, 1933. Station 1770.

Species	Depth	Cells per Liter				
		1 m.	10 m.	30 m.	50 m.	80 m.
<i>Coscinodiscus</i> sp. -----	--	--	--	--	55	55
<i>Guinardia flaccida</i> -----	--	--	--	110	--	--
<i>Nitzschia Closterium</i> -----	--	--	55	--	--	--
<i>Pinnularia</i> sp. -----	--	55	--	--	--	--
<i>Ceratium Fusus</i> -----	--	110	--	--	--	--
<i>Exuviaella marina</i> -----	770	165	--	--	--	--
<i>Peridinium</i> sp. -----	4500	330	--	--	--	--
<i>P. breve</i> -----	--	--	--	--	55	--
<i>Acanthoica acanthos</i> -----	330	--	220	--	--	--
<i>Pontosphaera Huxleyi</i> -----	--	--	55	--	--	--
<i>Syracosphaera</i> -----	330	--	--	--	--	--
<i>Phaeocystis</i> sp. -----	--	--	220	--	--	--
Flagellates -----	440	440	820	--	550	--
Protozoa -----	660	55	--	55	55	--

TABLE 8.—September, 1933. Station 1789

Species	Depth	Cells per Liter			
		1 m.	10 m.	30 m.	45 m.
<i>Coscinodiscus centralis</i>	---	---	---	180	---
<i>C. excentricus</i>	65	---	---	---	---
<i>Guinardia flaccida</i>	200	---	---	23,300	12,000
<i>Melosira sulcata</i>	20	---	---	155	---
<i>Navicula distans?</i>	45	---	45	110	65
<i>Pleurosigma Normani</i>	65	---	110	90	45
<i>Rhizosolenia setigera</i>	---	---	---	110	---
<i>Thalassionem nitzschioides</i>	810	---	330	3,150	2,440
<i>Thalassiosira bioculata</i>	65	---	---	45	---
<i>Th. Nordenskiöldii</i>	---	---	285	1,000	90
<i>Ceratium Fusus</i>	45	---	---	20	20
<i>C. lineatum</i>	155	---	---	460	220
<i>C. longipes</i>	45	---	---	---	---
<i>C. tripos</i>	---	---	---	---	20
<i>Dinophysis acuminata</i>	20	---	20	---	65
<i>D. Ovum</i>	45	---	---	---	---
<i>Goniaulax tamarensis</i>	---	---	---	110	---
<i>Peridinium</i> sp.	155	---	---	---	90
<i>P. depressum</i>	---	---	175	90	65
<i>Prorocentrum micans</i>	110	---	90	310	350
<i>Acanthoica acanthos</i>	---	---	20	---	---
<i>Pontosphaera Huxleyi</i>	---	---	---	65	---
<i>Dictyocha fibula</i>	20	---	---	---	---
Flagellates	---	---	---	375	175
Protozoa	90	---	---	20	---

TABLE 9.—October, 1933. Station 1812.

Species	Depth	Cells per Liter		
		10 m.	30 m.	55 m.
<i>Coscinodiscus centralis</i>	---	20	65	---
<i>C. excentricus</i>	---	1585	660	495
<i>Melosira sulcata</i>	---	65	110	---
<i>Navicula distans</i>	---	20	20	20
<i>Rhizosolenia</i> sp.	---	---	---	45
<i>Thalassiosira</i> sp.	---	200	---	65
<i>Ceratium Fusus</i>	---	65	90	110
<i>C. lineatum</i>	---	200	20	45
<i>C. tripos</i>	---	---	---	20
<i>Dinophysis acuminata</i>	---	20	---	---
<i>D. Ovum</i>	---	45	65	110
<i>Exuviaella marina</i>	---	90	90	220
<i>Goniaulax</i> sp.	---	45	---	---
<i>Peridinium</i> sp.	---	20	---	---
<i>P. breve</i>	---	175	---	---
<i>P. denticulatum</i>	---	65	---	---
<i>P. conicoides</i>	---	---	---	65
<i>P. conicum</i>	---	---	90	---
<i>P. simplex</i>	---	---	20	---
<i>Procentrum micans</i>	---	2500	950	1600
<i>Acanthoica acanthos</i>	---	65	---	65
Flagellates	---	525	90	330
Protozoa	---	20	90	45

TABLE 10.—October, 1933. Station 1830

Species	Depth	Cells per Liter				
		1 m.	10 m.	30 m.	50 m.	80 m.
<i>Actinopterychus undulatus</i>	-----	--	--	--	--	110
<i>Melosira sulcata</i>	-----	--	--	175	640	1550
<i>Navicula distans</i>	-----	--	--	45	20	130
<i>N. Vanhoeffeni</i>	-----	--	--	--	--	155
<i>Thalassiosira Nordenskiöldii</i>	-----	20	--	45	45	--
<i>Ceratium tripos</i>	-----	--	--	20	--	--
<i>Goniaulax</i> sp.	-----	--	--	--	20	--
<i>Peridinium</i> sp.	-----	--	--	--	20	--
<i>Pontosphaera Huxleyi</i>	-----	--	--	200	65	200
<i>Rhabdosphaera styliformis</i>	-----	--	--	--	20	--
<i>Syrachosphaera pulchra</i>	-----	--	--	--	90	--
<i>Dictyocha fibula</i>	-----	--	--	--	20	--
Flagellates	-----	--	--	175	65	45
Protozoa	-----	--	--	45	200	375

TABLE 11.—October, 1933. Station 1855.

Species	Depth	Cells per Liter				
		1 m.	10 m.	30 m.	50 m.	80 m.
<i>Coscinodiscus centralis</i> -----	--	--	20	--	--	20
<i>Melosira sulcata</i> -----	--	--	20	--	--	--
<i>Exuviaella</i> sp. -----	220	--	--	--	--	--
<i>Peridinium</i> sp. -----	--	--	--	--	20	--
Flagellates -----	20	--	640	--	110	--
Protozoa -----	45	--	130	--	--	--

TABLE 12.—October, 1933. Station 1857.

Species	Depth	Cells per Liter			
		1 m.	10 m.	50 m.	80 m.
<i>Coscinodiscus excentricus</i> -----	20	20	--	45	
<i>Exuviaella</i> sp. -----	45	20	155	110	
<i>Peridinium conicoides</i> -----	--	--	20		
Flagellates -----	200	45	2290	90	
Protozoa -----	20	20	--		

TABLE 13.—October, 1933. Station 1860.

Species	Depth	Cells per Liter				
		1 m.	10 m.	30 m.	50 m.	80 m.
<i>Coscinodiscus centralis</i>	45	--	--	--	45	--
<i>C. excentricus</i>	20	--	--	45	--	80
<i>Ceratium Fusus</i>	--	--	20	--	--	--
<i>C. longipes</i>	--	--	--	20	--	--
<i>C. tripos</i>	--	--	--	20	--	--
<i>Exuviaella</i> sp.	45	--	90	--	--	--
<i>Peridinium</i> sp.	--	--	--	--	20	--
Flagellates	--	--	--	--	20	--
Protozoa	--	--	90	--	90	20

TABLE 14.—December, 1933. Station 1864.

Species	Depth	Cells per Liter				
		1 m.	10 m.	30 m.	50 m.	80 m.
<i>Coscinodiscus centralis</i>	110	45	--	--	--	--
<i>C. excentricus</i>	--	20	--	45	20	--
<i>Exuviaella</i> sp.	--	--	20	--	--	--
<i>E. minima</i>	55	--	--	--	--	--
<i>Ebria antiqua</i>	55	--	--	--	--	--
Flagellates	--	45	20	--	20	--
Protozoa	--	20	--	20	--	--

TABLE 15.—December, 1933. Station 1871.

Species	Depth	Cells per Liter			
		1 m.	30 m.	50 m.	80 m.
<i>Actinoptychus undulatus</i>	110	--	--	--	--
<i>Coscinodiscus centralis</i>	--	--	65	--	20
<i>C. excentricus</i>	--	--	110	--	45
<i>Melosira sulcata</i>	--	--	--	--	155
<i>Navicula distans?</i>	--	--	20	--	--
<i>Thalassiosira decipiens</i>	--	--	65	--	20
<i>Exuviaella</i> sp.	--	--	20	--	20
<i>Acanthoica acanthos</i>	--	--	--	--	20
Flagellates	--	--	155	--	--
Protozoa	--	--	65	--	--

TABLE 16.—December, 1933. Station 1893.

Species	Depth	Cells per Liter			
		1 m.	10 m.	30 m.	80 m.
<i>Coscinodiscus excentricus</i>	--	--	200	--	--
<i>Thalassionema nitzschioides</i>	--	--	--	--	440
<i>Thalassiosira</i> sp.	--	--	--	--	220
<i>Ceratium tripos</i>	--	--	--	20	--
<i>Exuviaella</i> sp.	--	--	285	20	--
<i>Acanthoica acanthos</i>	20	--	20	--	220
Flagellates	--	--	65	--	110
Protozoa	65	--	155	110	--

TABLE 17.—December, 1933. Station 1899.

Species	Depth	Cells per Liter				
		1 m.	10 m.	30 m.	50 m.	80 m.
<i>Coscinodiscus centralis</i>	---	---	---	---	20	---
<i>C. excentricus</i>	---	---	---	45	---	---
<i>Thalassionema nitzschioides</i>	220	---	---	---	---	---
<i>Thalassiosira</i> sp.	110	---	---	---	---	---
<i>Exuviaella</i> sp.	---	---	---	---	45	---
<i>Acanthoica acanthos</i>	110	---	---	---	65	20
<i>Coccolithus</i> sp.	---	---	---	---	---	65
Flagellates	330	---	---	155	65	110
Protozoa	110	---	---	110	155	---

TABLE 18.—December, 1933. Station 1901.

Species	Depth	Cells per Liter	
		1 m.	10 m.
<i>Corethron hystrix</i>	45	45	20
<i>Coscinodiscus</i> sp.	45	45	—
<i>C. centralis</i>	20	20	110
<i>C. excentricus</i>	200	200	65
<i>Grammatophora marina</i>	20	20	—
<i>Melosira sulcata</i>	90	90	90
<i>Thalassionema nitzschioides</i>	265	265	65
<i>Ceratium Fusus</i>	20	20	—
<i>C. lineatum</i>	45	45	20
<i>C. tripos</i>	45	45	20
<i>Dinophysis acuminata</i>	—	—	20
<i>D. Ovum</i>	20	20	—
<i>Exuviaella</i> sp.	20	20	110
<i>Gymnodinium</i> sp.	—	—	65
<i>Noctiluca miliaris</i>	45	45	—
<i>Peridinium</i> sp.	45	45	90
<i>P. conicoides</i>	—	—	65
<i>Prorocentrum micans</i>	375	375	375
<i>Acanthoica acanthos</i>	20	20	—
Flagellates	240	240	200
Protozoa	240	240	330

TABLE 19.—January, 1934. Station 1909.

Species	Depth	Cells per Liter				
		1 m.	10 m.	30 m.	50 m.	80 m.
<i>Coscinodiscus centralis</i>	—	—	—	65	65	45
<i>C. excentricus</i>	65	175	265	240	110	—
<i>Melosira sulcata</i>	20	—	20	20	20	—
<i>Nitzschia longissima</i>	—	45	—	—	—	—
<i>Thalassiosira decipiens</i>	20	—	—	20	—	—
<i>Ceratium tripos</i>	—	—	—	20	—	—
<i>Acanthoica acanthos</i>	20	—	—	—	—	—
<i>Pontosphaera Huxleyi</i>	20	65	20	90	—	—
<i>Rhabdosphaera tubulosa</i>	—	—	40	—	—	—
Flagellates	65	65	110	220	—	—
Protozoa	20	—	—	—	—	—

TABLE 20.—January, 1934. Station 1913.

Species	Depth	Cells per Liter				
		1 m.	10 m.	30 m.	50 m.	80 m.
<i>Coscinodiscus centralis</i>	—	—	—	—	65	90
<i>C. excentricus</i>	175	45	65	90	155	—
<i>Melosira sulcata</i>	330	155	—	175	220	—
<i>Navicula</i> sp.	—	45	90	20	20	—
<i>Nitzschioides longissima</i>	110	20	—	—	—	—
<i>Pleurosigma Normani</i>	—	—	65	45	45	—
<i>Thalassionema nitzschioides</i>	130	45	—	—	—	—
<i>Thalassiosira decipiens</i>	130	20	155	375	155	—
<i>Ceratium Fusus</i>	—	—	—	20	—	—
<i>Exuviaella baltica</i>	90	—	—	20	—	—
Flagellates	110	20	20	20	20	—
Protozoa	45	—	—	—	—	20

TABLE 21.—January, 1934. Station 1918.

Species	Depth	Cells per Liter			
		1 m.	10 m.	30 m.	50 m.
<i>Coscinodiscus centralis</i>	---	---	---	20	---
<i>Leptocylindrus danicus</i>	---	---	---	90	---
<i>Nitzschia longissima</i>	---	---	---	20	---
<i>Skeletonema costatum</i>	---	---	---	---	45
<i>Thalassiosira decipiens</i>	---	---	---	90	---
<i>Ceratium Fusus</i>	---	---	20	---	---
<i>Exuviaella marina</i>	---	---	20	---	---
<i>Acanthoica acanthos</i>	20	---	---	20	---
Flagellates	---	---	---	330	20
Protozoa	45	---	20	45	45

TABLE 22.—January, 1934. Station 1927.

Species	Depth	Cells per Liter		
		1 m.	10 m.	30 m.
<i>Coscinodiscus centralis</i>	---	---	20	45
<i>Leptocylindrus danicus</i>	---	---	---	90
<i>Nitzschia longissima</i>	---	---	---	45
<i>Thalassionema nitzschioides</i>	130	---	---	---
<i>Thalassiosira decipiens</i>	---	---	20	45
<i>Th. Nordenskiöldii</i>	---	---	---	90
<i>Ceratium Fusus</i>	---	---	---	20
<i>C. lineatum</i>	---	---	20	---
<i>Exuviaella marina</i>	45	---	---	---
<i>Peridinium</i> sp.	---	---	---	65
Flagellates	110	---	110	90
Protozoa	45	---	---	45

TABLE 23.—January, 1934. Station 1934.

Species	Depth	Cells per Liter		
		1 m.	30 m.	50 m.
<i>Actinopterychus undulatus</i>	---	---	---	110
<i>Coscinodiscus centralis</i>	---	---	400	350
<i>C. excentricus</i>	---	200	350	220
<i>Cyclotella</i> sp.	---	20	---	---
<i>Leptocylindrus danicus</i>	---	155	---	---
<i>Melosira sulcata</i>	---	---	285	---
<i>Nitzschia longissima</i>	---	20	---	---
<i>Pleurosigma Normani</i>	---	20	45	---
<i>Thalassionema nitzschioides</i>	---	1475	1780	2795
<i>Thalassiosira Nordenskiöldii</i>	---	920	285	240
<i>Triacratium alternans</i>	---	45	---	---
<i>Ceratium lineatum</i>	---	65	---	20
<i>C. tripos</i>	---	---	20	45
<i>Exuviaella marina</i>	---	---	---	65
<i>Prorocentrum micans</i>	---	110	330	265
<i>Acanthoica acanthos</i>	---	20	---	---
<i>Dictyocha fibula</i>	---	20	---	---
Flagellates	---	155	20	---
Protozoa	---	45	45	45

TABLE 24.—March, 1934. Station 2022

Species	Depth	Cells per Liter				
		1 m.	10 m.	30 m.	50 m.	80 m.
<i>Detonula confervacea</i> -----	110	--	--	--	--	--
<i>Rhizosolenia alata</i> -----	275	385	--	--	--	--
<i>Ceratium tripos</i> -----	--	55	--	--	--	--

TABLE 25.—March, 1934. Station 2029.

Species	Depth	Cells per Liter			
		1 m.	10 m.	30 m.	45 m.
<i>Chaetoceros</i> sp. -----	--	--	--	880	--
<i>Pleurosigma Normani</i> -----	440	--	110	330	--
<i>Porosira glacialis</i> -----	6050	--	5107	7050	6600
<i>Rhizosolenia alata</i> -----	--	--	--	110	--
<i>Thalassiosira hyalina</i> -----	--	--	--	1210	--
<i>Th. Nordenskiöldii</i> -----	9250	--	6500	16250	33200
<i>Peridinium</i> sp. -----	110	--	--	--	--
<i>P. americanum</i> -----	220	--	--	--	--
Protozoa -----	--	--	550	220	220

TABLE 26.—March, 1934. Station 2042.

Species	Depth	Cells per Liter			
		10 m.	30 m.	50 m.	80 m.
<i>Cocconeis Scutellum</i> -----	--	--	--	110	--
<i>Rhizosolenia alata</i> -----	--	--	--	1210	--
<i>Rh. Shrubsolei</i> -----	--	--	--	220	--
<i>Thalassionema nitzschioides</i> -----	--	--	--	1320	--
<i>Thalassiosira Nordenskiöldii</i> -----	--	--	330	220	--
<i>Ceratium Fusus</i> -----	--	--	--	330	--
<i>Exuviaella baltica</i> -----	--	--	--	1100	660
<i>Peridinium</i> sp. -----	330	--	--	--	--
<i>Syracosphaera</i> sp. -----	--	--	--	110	165
Flagellates -----	--	--	--	1550	275
Protozoa -----	--	--	--	220	55

TABLE 27.—March, 1934. Station 2060.

Species	Depth	Cells per Liter			
		1-10 m.	30 m.	50 m.	80 m.
<i>Nitzschia longissima</i> -----	20	--	--	--	--
<i>Thalassiosira Nordenskiöldii</i> -----	45	--	--	90	--
<i>Acanthoica acanthos</i> -----	--	--	--	--	45
<i>Syracosphaera</i> sp. -----	65	--	--	--	--
Flagellates -----	65	--	--	--	--
Protozoa -----	130	--	--	--	--

Table 28.—March, 1934. Station 2069.

Species	Depth	Cells per Liter	
		7 m.	27 m.
<i>Actinoptychus undulatus</i>	-----	330	240
<i>Coscinodiscus centralis</i>	-----	550	550
<i>C. excentricus</i>	-----	1130	175
<i>Navicula Vanhoeffeni</i>	-----	5000	3400
<i>Nitzschia Closterium</i>	-----	---	45
<i>Pleurosigma Normani</i>	-----	110	---
<i>Porosira glacialis</i>	-----	460	410
<i>Thalassionema nitzschioides</i>	-----	4160	990
<i>Thalassiosira decipiens</i>	-----	---	850
<i>Th. Nordenskiöldii</i>	-----	---	265
<i>Ceratium longipes</i>	-----	---	20
<i>Peridinium breve</i>	-----	---	90
<i>P. denticulatum</i>	-----	20	---
<i>P. depressum</i>	-----	20	---
<i>Phalocroma</i> sp.	-----	65	---
Flagellates	-----	20	---
Protozoa	-----	110	65

TABLE 29.—April, 1934. Cells per column of water 1/10 M.2

Species	Station	2080	2083	2086
<i>Achnanthes taeniata</i>	-----	---	---	14,200,000
<i>Chaetoceros diadema</i>	-----	286,350,000	---	58,500,000
<i>Ch. atlanticus</i>	-----	---	---	3,366,000
<i>Ch. constrictus</i>	-----	4,945,000	---	3,978,000
<i>Ch. convolutus</i>	-----	115,000	1,260,000	104,000,000
<i>Ch. debilis</i>	-----	9,200,000	---	4,750,000
<i>Ch. decipiens</i>	-----	690,000	---	2,210,000
<i>Ch. compressus</i>	-----	11,530,000	---	30,500,000
<i>Ch. didymus</i>	-----	21,610,000	---	5,700,000
<i>Ch. laciniosus</i>	-----	3,565,000	---	612,000
<i>Ch. lorenzianus</i>	-----	3,450,000	---	---
<i>Ch. radians</i>	-----	41,000,000	---	15,000,000
<i>Ch. teres</i>	-----	560,000	---	---
<i>Melosira</i> sp.	-----	---	---	790,000
<i>Navicula distans</i>	-----	230,000	---	---
<i>Porosira glacialis</i>	-----	---	---	65,600,000
<i>Rhizosolenia semispina</i>	-----	---	---	29,000,000
<i>Thalassiosira Nordenskiöldii</i>	-----	63,500,000	---	20,700,000

TABLE 30.—April, 1934. Cells per Column.

Species	Station	2090	2098	2115
<i>Achnanthes taeniata</i>	-----	32,300,000	572,500,000	3,220,000
<i>Biddulphia aurita</i>	-----	655,000	---	---
<i>Chaetoceros</i> spp.	-----	---	---	2,780,000
<i>Ch. atlanticus</i>	-----	2,400,000	545,000,000	26,900,000
<i>Ch. constrictus</i>	-----	437,000	---	---
<i>Ch. convolutus</i>	-----	32,500,000	---	---
<i>Ch. debilis</i>	-----	3,060,000	17,920,000	880,000
<i>Ch. decipiens</i>	-----	11,800,000	---	---
<i>Ch. diadema</i>	-----	2,400,000	620,000,000	33,500,000
<i>Ch. didymus</i>	-----	13,550,000	---	---
<i>Ch. laciniosus</i>	-----	5,900,000	---	4,980,000

<i>Ch. radians</i> -----	13,550,000	29,000,000	12,450,000
<i>Corethran hystrix</i> -----	-----	1,380,000	-----
<i>Coscinodiscus centralis</i> -----	-----	-----	146,000
<i>Detonula confervacea</i> -----	-----	-----	439,000
<i>Leptocylindrus danicus</i> -----	1,310,000	-----	-----
<i>Navicula</i> sp. -----	1,920,000	1,380,000	293,000
<i>Nitzschia Closterium</i> -----	218,200	-----	732,000
<i>Porosira glacialis</i> -----	670,000,000	3,190,000,000	15,400,000
<i>Rhizosolenia Shrubsolei</i> -----	2,620,000	19,310,000	732,000
<i>Thalassionema nitzschioides</i> -----	4,370,000	-----	2,050,000
<i>Thalassiosira hyalina</i> -----	31,500,000	567,000,000	11,300,000
<i>Th. Nordenskiöldii</i> -----	657,500,000	7,600,000,000	109,500,000
<i>Thalassiothrix longissima</i> -----	-----	6,900,000	-----
<i>Peridinium</i> spp. -----	-----	1,380,000	293,000
<i>P. conicum</i> -----	437,000	-----	-----

TABLE 31.—May, 1934. Cells per Column.

Species	Station	2168	2179	2121
<i>Biddulphia aurita</i> -----	-----	234,000	-----	-----
<i>Chaetoceros atlanticus</i> -----	-----	-----	55,200	147,000
<i>Ch. borealis</i> -----	-----	469,000	-----	-----
<i>Ch. borealis</i> var. <i>concavicornis</i> -----	3,280,000	-----	-----	-----
<i>Ch. convolutus</i> -----	3,870,000	-----	-----	94,100
<i>Ch. constrictus</i> -----	703,000	-----	-----	-----
<i>Ch. decipiens</i> -----	820,000	-----	55,200	94,100
<i>Ch. didymus</i> -----	3,280,000	-----	-----	110,000
<i>Ch. furcellatus</i> -----	3,630,000	-----	-----	-----
<i>Coscinodiscus centralis</i> -----	-----	-----	18,400	36,800
<i>Rhizosolenia semispina</i> -----	-----	-----	-----	36,800
<i>Rh. Shrubsolei</i> -----	117,000	-----	-----	18,400
<i>Thalassionema nitzschioides</i> -----	234,000	-----	-----	-----
<i>Thalassiosira Nordenskiöldii</i> -----	1,170,000	-----	-----	-----
<i>Ceratium Fusus</i> -----	-----	-----	-----	18,400
<i>C. longipes</i> -----	-----	-----	18,400	-----
<i>Peridinium</i> spp. -----	234,000	-----	147,000	405,000
<i>P. debressum</i> -----	-----	-----	91,000	-----

TABLE 32.—May, 1934. Cells per Column.

Species	Station	2186	2201	2205
<i>Chaetoceros constrictus</i> -----	11,140,000	-----	-----	-----
<i>Ch. convolutus</i> -----	72,000	-----	-----	-----
<i>Ch. debilis</i> -----	3,150,000	-----	-----	-----
<i>Ch. decipiens</i> -----	270,000	-----	-----	-----
<i>Ch. didymus</i> -----	558,000	-----	-----	-----
<i>Ch. laciniosus</i> -----	72,000	-----	-----	-----
<i>Coscinodiscus centralis</i> -----	18,000	-----	-----	11,100
<i>Detonula confervacea</i> -----	54,000	-----	-----	-----
<i>Melosira sulcata</i> -----	216,000	-----	-----	-----
<i>Porosira glacialis</i> -----	2,195,000	-----	-----	-----
<i>Rhizosolenia semispina</i> -----	18,000	-----	-----	-----
<i>Thalassiosira Nordenskiöldii</i> -----	18,000	-----	-----	-----
<i>Ceratium longipes</i> -----	-----	-----	16,600	33,400
<i>Noctiluca miliaris</i> -----	-----	-----	-----	11,100
<i>Peridinium</i> sp. -----	72,000	-----	82,700	66,800
<i>P. depressum</i> -----	-----	-----	82,700	55,600

TABLE 33.—June, 1934. Station 2220.

Species	Depth	Cells per Liter		
		1 m.	40 m.	70 m.
<i>Rhizosolenia</i> sp. -----	-----	--	45	--
<i>Peridinium</i> sp. -----	-----	--	20	--
<i>Acanthoica acanthifera</i> -----	-----	--	45	--
Flagellates -----	20	--	130	20
Protozoa -----	--	--	20	--

TABLE 34.—June, 1934. Station 2224.

Species	Depth	Cells per Liter		
		1 m.	30 m.	50 m. 80 m.
<i>Melosira sulcata</i> -----	-----	--	--	200
<i>Thalassiosira</i> sp. -----	-----	--	--	--
<i>Rhizosolenia</i> sp. -----	45	--	--	--
<i>Ceratium longipes</i> -----	20	--	--	--
<i>Peridinium</i> -----	-----	20	20	--
<i>Acanthoica acanthos</i> -----	20	--	--	--
Flagellates -----	485	65	20	--
Protozoa -----	240	--	65	45

TABLE 35.—June, 1934. Station 2226.

Species	Depth	Cells per Liter		
		1 m.	10 m.	30 m. 50 m.
<i>Chaetoceros decipiens</i> -----	-----	--	--	45
<i>Ch. furcellatus</i> -----	-----	--	--	45
<i>Guinardia flaccida</i> -----	20	--	--	--
<i>Melosira sulcata</i> -----	45	--	--	420
<i>Nitzschia longissima</i> -----	65	--	--	45
<i>Pinnularia</i> sp. -----	-----	--	--	45
<i>Rhizosolenia</i> sp. -----	45	--	--	--
<i>Thalassionema nitzschioides</i> -----	200	--	--	--
<i>Thalassiosira</i> sp. -----	20	--	--	420
<i>Th. Nordenskiöldii</i> -----	220	420	--	130
<i>Dinophysis acuminata</i> -----	65	--	--	--
<i>D. Ovum</i> -----	-----	--	20	--
<i>Peridinium</i> sp. -----	45	--	--	20
<i>P. conicum</i> -----	-----	--	400	--
<i>P. depressum</i> -----	20	--	--	--
<i>P. Granii</i> -----	-----	--	640	--
<i>P. Simplex</i> -----	200	--	--	--
Flagellates -----	4840	9640	2070	90
Protozoa -----	1690	770	440	--

TABLE 36.—June, 1934. Station 2228.

Species	Depth	Cells per Liter		
		10 m.	30 m.	80 m.
<i>Actinopterychus undulatus</i> -----	-----	--	45	--
<i>Chaetoceros decipiens</i> -----	20	--	110	--
<i>Coscinodiscus excentricus</i> -----	-----	--	45	90
<i>Melosira sulcata</i> -----	-----	--	300	--
<i>Pleurosigma Normani</i> -----	155	--	130	20
<i>Thalassionema nitzschioides</i> -----	-----	--	45	--
<i>Thalassiosira decipiens</i> -----	375	--	155	--
<i>Th. Nordenskiöldii</i> -----	-----	--	--	20
Flagellates -----	-----	--	20	--

TABLE 37.—August, 1936.

Key: 4—dominant; 3—common; 2—rare; 1—very rare.

Species	Station	2659	2660	2663	1	3
<i>Chaetoceros affinis</i> -----	-	-	-	-	1	-
<i>Ch. atlanticus</i> -----	-	-	-	-	1	1
<i>Ch. borealis</i> -----	-	-	-	-	1	1
<i>Ch. compressus</i> -----	-	-	-	-	4	-
<i>Ch. constrictus</i> -----	-	-	3	-	2	-
<i>Ch. convolutus</i> -----	-	-	-	-	2	-
<i>Ch. crinitus</i> -----	-	-	-	-	1	-
<i>Ch. decipiens</i> -----	1	1	-	-	-	-
<i>Ch. didymus</i> -----	1	-	-	-	-	-
<i>Ch. laciniosus</i> -----	-	-	-	-	2	-
<i>Ch. pseudocrinitus</i> -----	-	-	-	-	3	-
<i>Ch. teres</i> -----	-	-	-	-	4	-
<i>Corethron hystrix</i> -----	-	-	-	-	1	-
<i>Coscinodiscus centralis</i> -----	-	-	-	-	-	2
<i>C. excentricus</i> -----	-	-	-	-	-	1
<i>Guinardia flaccida</i> -----	2	2	2	-	-	2
<i>Leptocylindrus danicus</i> -----	-	2	-	-	1	-
<i>Lichmophora abbreviata</i> -----	-	-	-	-	1	-
<i>Navicula</i> sp. -----	-	-	-	-	1	1
<i>Nitzschia Closterium</i> -----	-	1	-	-	2	4
<i>Pleurosigma Normani</i> -----	-	-	-	-	1	2
<i>Rhizosolenia alata</i> -----	4	4	1	-	-	-
<i>Rh. calcar-avis</i> -----	-	-	-	-	4	-
<i>Rh. semispina</i> -----	1	1	1	-	-	-
<i>Rh. Shrubsolei</i> -----	-	1	-	-	3	-
<i>Rh. styliiformis</i> -----	-	-	-	-	4	4
<i>Sceletonema costatum</i> -----	-	-	-	-	-	-
<i>Thalassiosira Nordenskiöldii</i> -----	-	-	-	-	1	-
<i>Ceratium bucephalum</i> -----	1	-	-	-	-	-
<i>C. Fusus</i> -----	1	1	1	-	1	-
<i>C. lineatum</i> -----	1	1	-	-	-	-
<i>C. longipes</i> -----	2	1	-	-	-	-
<i>C. macroceros</i> -----	1	1	1	-	-	-
<i>C. tripos</i> -----	1	1	-	-	-	1
<i>C. tripos</i> var. <i>atlanticus</i> -----	3	1	2	-	1	-
<i>C. tripos</i> var. <i>subsalsum</i> -----	3	1	-	-	-	-
<i>Dinophysis acuminata</i> -----	1	1	-	-	-	-
<i>D. norvegica</i> -----	1	-	-	-	-	-
<i>D. Ovum</i> -----	-	1	-	-	-	-
<i>Gymnodinium</i> sp. -----	-	-	-	-	1	1
<i>Noctiluca miliaris</i> -----	1	-	-	-	-	1
<i>Peridinium</i> sp. -----	1	1	-	-	-	-
<i>P. crassipes</i> -----	2	2	-	-	-	-
<i>P. depressum</i> -----	-	-	-	-	1	1
<i>Prorocentrum micans</i> -----	1	-	-	-	-	-
<i>P. Scutellum</i> -----	-	-	-	-	-	-
<i>Pontosphaera Huxleyi</i> -----	-	-	-	-	1	-
<i>Dictyocha fibula</i> -----	-	2	-	-	-	-
<i>Distephanus speculum</i> -----	-	1	-	-	-	-

